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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/980,442	03/21/2002	Marcel Garnier	Garnier-3	3607

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EXAMINER

KERNS, KEVIN P

ART UNIT PAPER NUMBER

1725

DATE MAILED: 02/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/980,442

Applicant(s)

GARNIER ET AL.

Examiner

Kevin P. Kerns

Art Unit

1725

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 29 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 5-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Kubota et al. (US 5,307,863).

Kubota et al. disclose a method and apparatus for continuous casting of a cast slab by means of a linearly shifting (sliding) magnetic field as an electromagnetic brake for flow control to achieve an average flow speed 27 (V), in which the apparatus further includes an immersion nozzle 8 with two exit ports 29 through which molten metal flows (abstract; column 3, lines 10-44; column 6, lines 58-67; column 7, lines 1-67; column 8, lines 1-34; column 9, lines 40-48; column 10, lines 11-34; column 11, lines 27-53; column 16, lines 1-28; and Figures 3, 5, and 6). The apparatus contains magnetic field generators 18 (inductors) that would (inherently) be controlled in terms of voltage or current by control means at a central processing station (column 10, lines 11-34; and Figure 5), and Figure 6 shows (independent) control of independent supply circuits (two sets of symbols R, T, and S). In addition, it is noted that the applicants' admitted prior art, in reference to Kubota et al. in EP 0 550 785 (analogous to US 5,307,863), states

that the present invention does not modify the structure of conventional installations  
(applicants' admitted prior art; specification -- page 7, lines 13-17).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1-4 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kubota et al. (US 5,307,863) in view of Eriksson et al. (WO 99/11403).

Kubota et al. disclose the apparatus claim limitations set forth in claims 5-7 above. Although the measuring of the voltage and current to extract a flow speed (also in view of the claim 2 equation) are not specifically disclosed by Kubota et al., Kubota et al. disclose that the inconvenience of not being able to measure the average flow speed is overcome by their method, such that the shifting speed of the linearly shifting magnetic field is controlled to effectively brake a flow speed of molten steel (column 8, lines 47-62). One of ordinary skill in the art would have recognized that the parameters and equations set forth by Kubota et al., would enable measurement of dynamic flow speeds at regions within the continuous casting mold, as the apparatus contains molten metal sensors 14,17, a (servo) control device 16, and magnetic field generators 18 (inductors) that are controlled in terms of voltage, current, and frequency, and including known flow speeds, as set forth by a plurality of equations disclosed by Kubota et al. (column 6, lines 49-67; column 7, lines 1-67; column 8, lines 1-19; and column 9, lines 25-48). The additional control steps in the process of Kubota et al. are advantageous for reducing waves (which lead to inclusions) in the casting of a slab under the flexible control condition of operation (Kubota et al.; column 3, lines 10-13). Kubota et al. do not specifically set forth the control of one of current or voltage (while the other is kept constant) in their constant power source.

However, Eriksson et al. disclose a method and device for control of metal flow during continuous casting via electromagnetic fields, in which the method includes providing primary and secondary flow rates to be monitored and controlled by a control unit 44, resulting in analysis and regulation of the magnetic flux density, which is accomplished by control of one or more of the amperage or the voltage of the electromagnets (constant power source), such that metal flows at portions of the continuous casting mold would be accurately monitored and controlled independently to avoid unsymmetrical or unbalanced overall flow, resulting in the reduction of defects in the cast product (abstract; page 1, lines 1-6; page 5, line 1 through page 9, line 3; page 13, line 3 through page 19; and Figures 1-8).

It would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to modify the method and apparatus for continuous casting of a cast slab by means of a linearly shifting (sliding) magnetic field as an electromagnetic brake for flow control, as disclosed by Kubota et al., by adding the specified control of one or more of the amperage or the voltage of the electromagnets, as taught by Eriksson et al., in order to accurately and independently monitor and control metal flows at portions of the continuous casting mold to avoid unsymmetrical or unbalanced overall flow, resulting in the reduction of defects in the cast product (Eriksson et al.; abstract; page 5, paragraphs 1-3; and page 14, lines 1-11).

***Continued Examination Under 37 CFR 1.114***

7. All claims are drawn to the same invention claimed in the application prior to the entry of the submission under 37 CFR 1.114 and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the application prior to entry under 37 CFR 1.114. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action after the filing of a request for continued examination and the submission under 37 CFR 1.114. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

***Conclusion***


8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Kevin P. Kerns whose telephone number is (571) 272-1178. The examiner can normally be reached on Monday-Friday from 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kevin P. Kerns  
Examiner  
Art Unit 1725

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February 2, 2004

  
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SUPERVISORY PATENT EXAMINER  
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